QUALCOMM Incorporated

1730 Pennsylvania Ave., NW ■ Suite 850 ■ Washington, DC 20006 ■ Tel: 202.263.0020 www.qualcomm.com

March 14, 2018

***Ex Parte* Notice**

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Promoting Investment in the 3550-3700 MHz Band – GN Docket No. 17-258

Dear Ms. Dortch:

Qualcomm had telephone meetings with representatives from the Commission's Office of Engineering and Technology on March 12 and 14, 2018, to discuss the proposed revisions to the emissions limits for the 3.5 GHz band in the above docket. Qualcomm was represented in both meetings by Gene Fong, Pushp Trikha, and the undersigned. The FCC was represented by Robert Pavlak, Ron Repasi, and Rashmi Doshi on March 12 and by Robert Pavlak, Rashmi Doshi, Navid Golshahi, and Walter Johnston on March 14.

In these meetings, Qualcomm reiterated that implementation of the Qualcomm emissions proposal cures the problem with the current FCC rules that require significant automatic power reduction for user equipment ("UE") operating with a channel bandwidth wider than 10 MHz, while the so-called graduated emissions proposal provides less relief. Enabling both 4G and 5G operations in the 3.5 GHz band using channel bandwidths greater than 10 MHz, without requiring any undue power reduction for UEs, without unduly impacting operations on adjacent channels within the 3.5 GHz band, and without causing any harmful impact on operations in adjacent bands, is key to delivering the best possible mobile broadband service for consumers while maintaining the value of all the channels in the band. We discussed the tradeoffs involved in revising the emissions mask — the need to fully protect operations in adjacent bands, the need to avoid imposing an undue power reduction penalty on UEs operating with a channel bandwidth wider than 10 MHz, and the need to avoid allowing any undue noise within the 3.5 GHz band.

Qualcomm presented the attached slide deck in the March 14 meeting. The slides show that operations using a full resource allocation in a 40 MHz channel are limited by the 3GPP ACLR requirement of -30 dBc (and not by either the Qualcomm emissions proposal or the graduated emissions proposal) while operations using a low resource allocation in a 40 MHz channel are instead limited by the emissions mask proposals for which the Qualcomm proposal enables 1 dB less power reduction than the graduated proposal (and not by the ACLR requirement).

Qualcomm reiterated that the Commission should adopt Qualcomm's proposal because it will enable improved wireless coverage, protect the utility of the band for both 4G and 5G, and avoid interference to other users. Qualcomm's proposal is especially important because 3.5 GHz

is a key spectrum band around the world for 5G, which will use bandwidths much wider than 10 MHz.

Respectfully submitted,

Dean R. Brenner
Senior Vice President, Spectrum Strategy & Technology Policy

John W. Kuzin
Vice President and Regulatory Counsel

Att.

cc: Robert Pavlak
Rashmi Doshi
Ron Repasi
Navid Golshahi
Walter Johnston

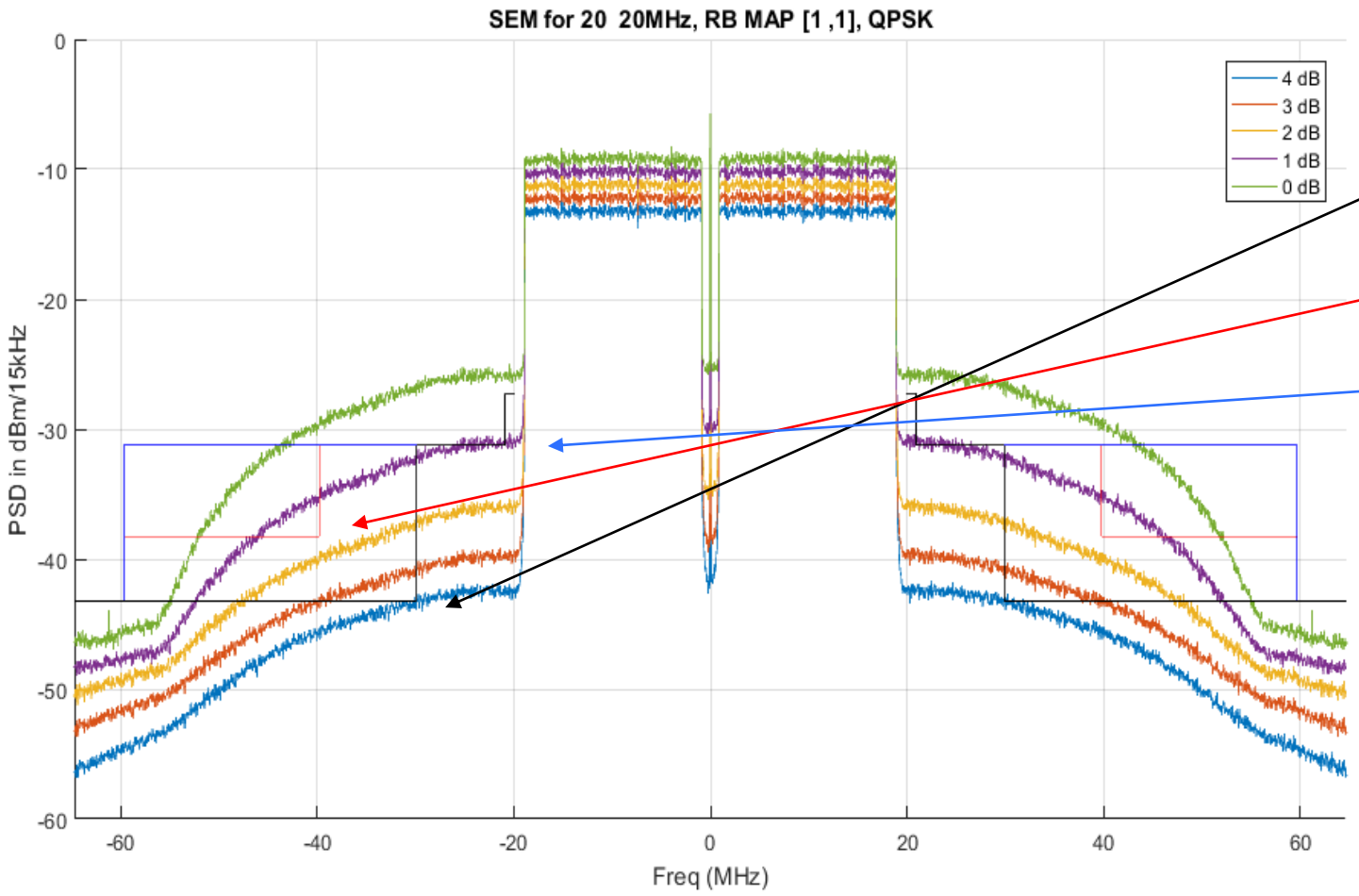
@qualcomm

Qualcomm

Additional technical information regarding CBRS emission proposals

March 14, 2018

Full Allocation (20+20) Emissions with SEM mask

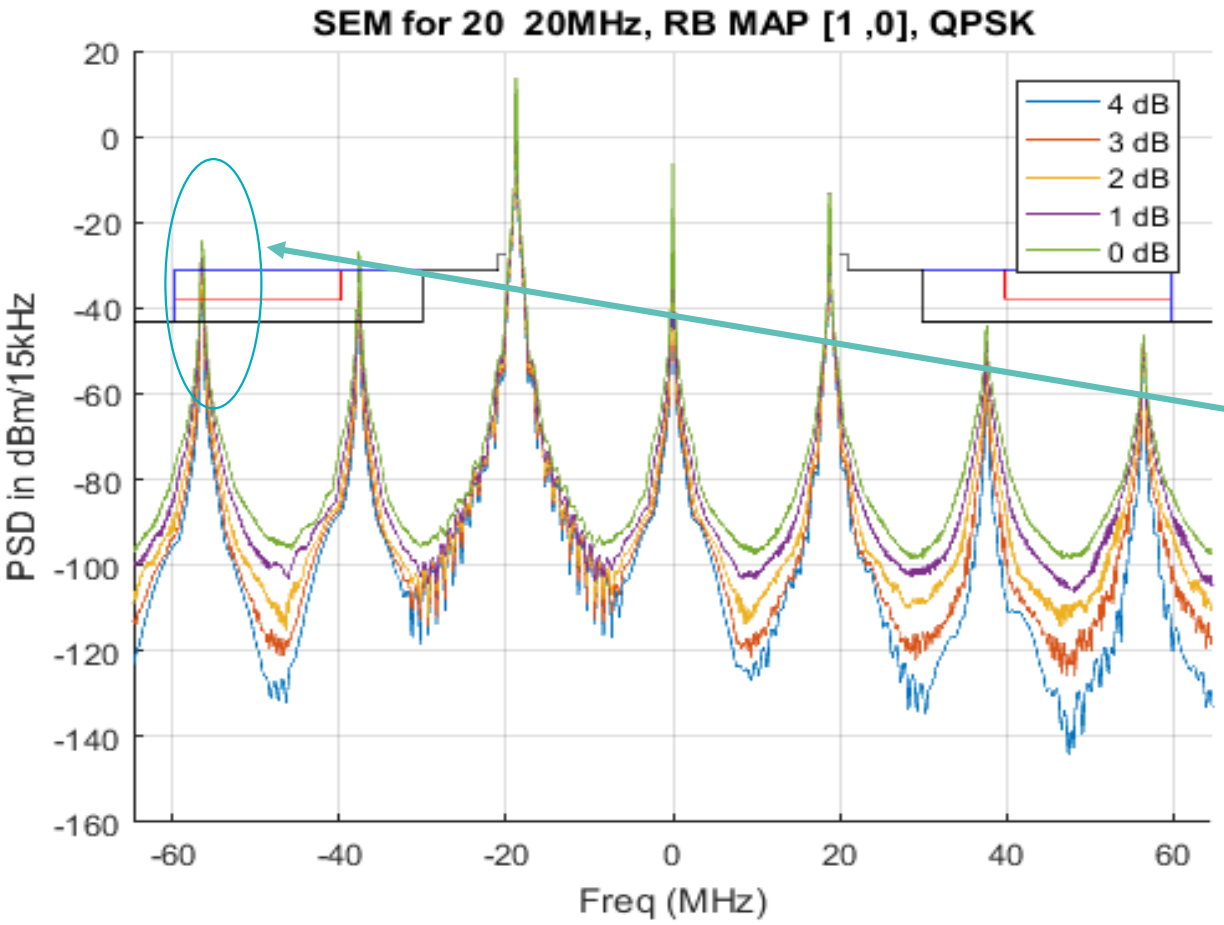


- 3.8 dB back-off required for **Original** SEM mask
- Under 2 dB back-off required for Graduated SEM mask
- Under 1 dB back-off required for Qualcomm SEM mask

- For Qualcomm and Graduated Masks, back-off requirement for full allocation is not limited by SEM mask
  - It is limited by ACLR
- 2 dB back-off needed to meet 3GPP ACLR requirement of -30 dBc

** Mask is scaled to the PSD of the plot

Low Allocation (20+20) Emissions with SEM mask



- 3.8dB back-off required for **Original** mask
- Under 2 dB back-off required for Graduated mask
- Under 1dB back-off required for Qualcomm mask

- No back-off necessary to comply with 30 dBc 3GPP ACLR requirement

** Mask is scaled to the PSD of the plot

Thank you

Follow us on:

For more information, visit us at:
www.qualcomm.com & www.qualcomm.com/blog